

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application. Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

Listing of Claims:

Claim 1 (currently amended): A method comprising:

computing a stereo disparity surface between a first image and a second image of a stereo image pair;

computing an integer position on a virtual image plane from a projection between the virtual image plane and a center of projection through a projected point on the stereo disparity surface to the virtual image plane; and

setting a pixel value of the integer position on the virtual image plane based on the projected point on the stereo disparity surface, wherein the setting operation comprises:

setting the pixel value of the integer position on the virtual image plane to a pixel value from one or more integer positions of the first image that corresponds with the projected point on the stereo disparity surface, if one or more integer positions of the second image that corresponds with the projected point on the stereo disparity surface are occluded,

wherein computing the stereo disparity surface, computing the integer position and setting the pixel value are controlled by a processor operating with a memory.

Claim 2 (original): The method of claim 1 wherein the setting operation comprises:

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setting the pixel value of the integer position on the virtual image plane as a weighted average of pixel values from integer positions of the first and second images that correspond with the projected point on the stereo disparity surface, if the integer positions of the first and second images that correspond with the projected point on the stereo disparity surface are not occluded.

Claim 3 (canceled).

Claim 4 (original): The method of claim 1 wherein the center of projection is translatable in a plane parallel to the virtual image plane.

Claim 5 (original): The method of claim 1 wherein the center of projection is translatable along a normal axis from the virtual image plane.

Claim 6 (original): The method of claim 1 wherein the center of projection maps to a virtual camera position.

Claim 7 (original): The method of claim 1 wherein the operation of computing an integer position on the virtual image plane comprises:

applying a projection matrix to a centered point in the virtual image plane to determine the location of the point on the virtual image plane.

Claim 8 (original): The method of claim 1 wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection through the projected point on the stereo disparity surface to the virtual image plane.

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Claim 9 (original): The method of claim 1 wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection the projected point on the stereo disparity surface to the virtual image plane, the projected point being at an integer position on the stereo disparity surface.

Claim 10 (original): The method of claim 1 wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection through the projected point on the stereo disparity surface to a floating point position on the virtual image plane; and
projecting an integer position on the virtual image plane to identify the projected point on the stereo disparity surface, the integer position being adjacent to the floating point position on the virtual image plane.

Claim 11 (original): The method of claim 1 wherein the setting operation comprises:

setting the pixel value associated with the integer position on the virtual image plane to a pixel value computed as a bilinear interpolation of pixel values from integer positions on the first and second images, each integer pixel position being corresponding to the integer position on the virtual image plane through an inverse mapping point on the stereo disparity surface.

Claim 12 (original): The method of claim 1 wherein the setting operation comprises:

setting the pixel value associated with the integer position on the virtual image plane to a pixel value computed as a bilinear interpolation of pixel values from integer positions on the first image, each integer pixel position being corresponding to the

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integer position on the virtual image plane through an inverse mapping point on the stereo disparity surface.

Claim 13 (currently amended): A computer program product, stored on a computer program storage medium, encoding a computer program for executing on a computer system a computer process, the computer process comprising:

computing a stereo disparity surface between a first image and a second image of a stereo image pair;

computing an integer position on a virtual image plane from a projection between the virtual image plane and a center of projection through a projected point on the stereo disparity surface to the virtual image plane; and

setting a pixel value of the integer position on the virtual image plane based on the projected point on the stereo disparity surface, wherein the setting operation comprises:

setting the pixel value of the integer position on the virtual image plane to a pixel value from one or more integer positions of the first image that corresponds with the projected point on the stereo disparity surface, if one or more integer positions of the second image that corresponds with the projected point on the stereo disparity surface are occluded.

Claim 14 (original): The computer program product of claim 13 wherein the setting operation comprises:

setting the pixel value of the integer position on the virtual image plane as a weighted average of pixel values from integer positions of the first and second images that correspond with the projected point on the stereo disparity surface, if the integer positions of the first and second images that correspond with the projected point on the stereo disparity surface are not occluded.

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Claim 15 (canceled).

Claim 16 (original): The computer program product of claim 13 wherein the center of projection is translatable in a plane parallel to the virtual image plane.

Claim 17 (original): The computer program product of claim 13 wherein the center of projection is translatable along a normal axis from the virtual image plane.

Claim 18 (original): The computer program product of claim 13 wherein the center of projection maps to a virtual camera position.

Claim 19 (original): The computer program product of claim 13 wherein the operation of computing an integer position on the virtual image plane comprises:

applying a projection matrix to a centered point in the virtual image plane to determine the location of the point on the virtual image plane.

Claim 20 (original): The computer program product of claim 13 wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection through the projected point on the stereo disparity surface to the virtual image plane.

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Claim 21 (original): The computer program product of claim 13 wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection the projected point on the stereo disparity surface to the virtual image plane, the projected point being at an integer position on the stereo disparity surface.

Claim 22 (original): The computer program product of claim 13 wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection through the projected point on the stereo disparity surface to a floating point position on the virtual image plane; and

projecting an integer position on the virtual image plane to identify the projected point on the stereo disparity surface, the integer position being adjacent to the floating point position on the virtual image plane.

Claim 23 (original): The computer program product of claim 13 wherein the setting operation comprises:

setting the pixel value associated with the integer position on the virtual image plane to a pixel value computed as a bilinear interpolation of pixel values from integer positions on the first and second images, each integer pixel position being corresponding to the integer position on the virtual image plane through an inverse mapping point on the stereo disparity surface.

Claim 24 (original): The computer program product of claim 13 wherein the setting operation comprises:

setting the pixel value associated with the integer position on the virtual image plane to a pixel value computed as a bilinear interpolation of pixel values from integer

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positions on the first image, each integer pixel position being corresponding to the integer position on the virtual image plane through an inverse mapping point on the stereo disparity surface.

Claim 25 (previously presented): A system comprising:

a dynamic programming module computing a stereo disparity surface between a first image and a second image of a stereo image pair;

a virtual camera translation module computing an integer position on a virtual image plane from a projection between the virtual image plane and a center of projection through a projected point on the stereo disparity surface to the virtual image plane; and

a cyclopean virtual image generator setting a pixel value of the integer position on the virtual image plane based on the projected point on the stereo disparity surface, wherein the cyclopean virtual image generator sets the pixel value of the integer position on the virtual image plane to a pixel value from one or more integer positions of the first image that corresponds with the projected point on the stereo disparity surface, if one or more integer positions of the second image that corresponds with the projected point on the stereo disparity surface are occluded.

Claim 26 (original): The system of claim 25 wherein the cyclopean virtual image generator sets the pixel value of the integer position on the virtual image plane as a weighted average of pixel values from integer positions of the first and second images that correspond with the projected point on the stereo disparity surface, if the integer positions of the first and second images that correspond with the projected point on the stereo disparity surface are not occluded.

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Claim 27 (canceled).

Claim 28 (original): The system of claim 25 wherein the center of projection is translatable in a plane parallel to the virtual image plane.

Claim 29 (original): The system of claim 25 wherein the center of projection is translatable along a normal axis from the virtual image plane.

Claim 30 (original): The system of claim 25 wherein the center of projection maps to a virtual camera position.

Claim 31 (original): The system of claim 25 wherein the virtual camera translation module applies a projection matrix to a centered point in the virtual image plane to determine the location of the point on the virtual image plane.

Claim 32 (original): The system of claim 25 wherein the virtual camera translation module projects the center of projection through the projected point on the stereo disparity surface to the virtual image plane.

Claim 33 (original): The system of claim 25 wherein the virtual camera translation module projects the center of projection the projected point on the stereo disparity surface to the virtual image plane, the projected point being at an integer position on the stereo disparity surface.

Claim 34 (original): The system of claim 25 wherein the virtual camera translation module projects the center of projection through the projected point on the stereo

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disparity surface to a floating point position on the virtual image plane, and projects an integer position on the virtual image plane to identify the projected point on the stereo disparity surface, the integer position being adjacent to the floating point position on the virtual image plane.

Claim 35 (original): The system of claim 25 wherein the setting operation comprises:
setting the pixel value associated with the integer position on the virtual image plane to a pixel value computed as a bilinear interpolation of pixel values from integer positions on the first and second images, each integer pixel position being corresponding to the integer position on the virtual image plane through an inverse mapping point on the stereo disparity surface.

Claim 36 (original): The system of claim 25 wherein the cyclopean virtual image generator sets the pixel value associated with the integer position on the virtual image plane to a pixel value computed as a bilinear interpolation of pixel values from integer positions on the first image, each integer pixel position being corresponding to the integer position on the virtual image plane through an inverse mapping point on the stereo disparity surface.

Claims 37–39 (canceled).

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Claim 40 (currently amended): A method comprising:

computing a stereo disparity surface between a first image and a second image of a stereo image pair;

computing an integer position on a virtual image plane from a projection between the virtual image plane and a center of projection through a projected point on the stereo disparity surface to the virtual image plane; and

setting a pixel value of the integer position on the virtual image plane based on the projected point on the stereo disparity surface, wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection through the projected point on the stereo disparity surface to a floating point position on the virtual image plane; and

projecting an integer position on the virtual image plane to identify the projected point on the stereo disparity surface, the integer position being adjacent to the floating point position on the virtual image plane,

wherein computing the stereo disparity surface, computing the integer position and setting the pixel value are controlled by a processor operating with a memory.

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Claim 41 (previously presented): A computer program product, stored on a computer program storage medium, encoding a computer program for executing on a computer system a computer process, the computer process comprising:

computing a stereo disparity surface between a first image and a second image of a stereo image pair;

computing an integer position on a virtual image plane from a projection between the virtual image plane and a center of projection through a projected point on the stereo disparity surface to the virtual image plane; and

setting a pixel value of the integer position on the virtual image plane based on the projected point on the stereo disparity surface, wherein the operation of computing an integer position on the virtual image plane comprises:

projecting the center of projection through the projected point on the stereo disparity surface to a floating point position on the virtual image plane; and

projecting an integer position on the virtual image plane to identify the projected point on the stereo disparity surface, the integer position being adjacent to the floating point position on the virtual image plane.

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Claim 42 (previously presented): A system comprising:

a dynamic programming module computing a stereo disparity surface between a first image and a second image of a stereo image pair;

a virtual camera translation module computing an integer position on a virtual image plane from a projection between the virtual image plane and a center of projection through a projected point on the stereo disparity surface to the virtual image plane; and

a cyclopean virtual image generator setting a pixel value of the integer position on the virtual image plane based on the projected point on the stereo disparity surface, wherein the virtual camera translation module projects the center of projection through the projected point on the stereo disparity surface to a floating point position on the virtual image plane, and projects an integer position on the virtual image plane to identify the projected point on the stereo disparity surface, the integer position being adjacent to the floating point position on the virtual image plane.

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